CORNELL UNIVERSITY OFFICIAL PUBLICATION

Announcement of the

School of Nutrition

for 1942-43

VOLUME 34 : AUGUST 15, 1942 : NUMBER 4

SEMINAR IN NUTRITION, 1941–42

The University Calendar for 1942-43

1942		FALL TERM
Sept. 9–10,	*Wed.-Thurs.*,	Entrance examinations.
Sept. 25,	*Friday*,	Orientation meetings.
Sept. 28,	*Monday*,	Registration and assignment, new students.
Sept. 29,	*Tuesday*,	Registration and assignment, old students.
Oct. 1,	*Thursday*,	Instruction begins at 8 A.M.
Oct. 22,	*Thursday*,	Last day for the payment of tuition for the fall term.
Nov. 26,	*Thursday*,	*Thanksgiving Day*, a holiday.
Dec. 19,	*Saturday*,	Instruction suspended at 12:50 P.M.
1943		*(Christmas Recess)*
Jan. 4,	*Monday*,	Instruction resumed at 8 A.M.
Jan. 11,	*Monday*,	*Founder's Day.*
Jan. 21,	*Thursday*,	Final examinations begin.
Jan. 28,	*Thursday*,	Final examinations end.
		SPRING TERM
Jan. 29,	*Friday*,	Registration of all students.
Feb. 1,	*Monday*,	Instruction begins at 8 A.M.
Feb. 22,	*Monday*,	Last day for the payment of tuition for the spring term.
March 27,	*Saturday*,	Instruction suspended at 12:50 P.M.
		(Spring Recess)
April 5,	*Monday*,	Instruction resumed at 8 A.M.
May 17,	*Monday*,	Final examinations begin.
May 22,	*Saturday*,	Final examinations end.
May 24,	*Monday*,	COMMENCEMENT.

CORNELL UNIVERSITY OFFICIAL PUBLICATION

PUBLISHED BY CORNELL UNIVERSITY AT ITHACA, N. Y.

Monthly in September, October, and November
Semi-monthly, December to August inclusive

[*Entered as second-class matter, December 14, 1916, at the post office at Ithaca, New York, under the act of August 24, 1912*]

FACULTY OF THE SCHOOL OF NUTRITION

ADMINISTRATION

EDMUND EZRA DAY, Ph.D., LL.D., President of the University.
LEONARD AMBY MAYNARD, Ph.D., Director of the School.
LEO CHANDLER NORRIS, Ph.D., Secretary of the School.

INSTRUCTION AND RESEARCH

SYDNEY ARTHUR ASDELL, Ph.D., Professor (*Physiology*).
LEROY LESHER BARNES, Ph.D., Assistant Professor (*Biophysics*).
RICHARD BRADFIELD, Ph.D., Professor (*Agronomy*).
WILLIAM H. CHAMBERS, Ph.D., Associate Professor (*Physiology*).
PETER J. W. DEBYE, Ph.D., Professor (*Chemistry*).
EUGENE F. DUBOIS, M.D., Professor (*Physiology*).
HENRY HUGH DUKES, M.S., Professor (*Physiology*).
VINCENT DU VIGNEAUD, Ph.D., Professor (*Biochemistry*).
JOSEPH A. DYE, Ph.D., Associate Professor (*Physiology*).
GORDON HUFF ELLIS, Ph.D., Assistant Professor (*Biochemistry*).
FAITH FENTON, Ph.D., Associate Professor (*Nutrition*).
GRACE FIALA, A.B., Technician (*Medicine*).
CARL EDWARD FREDERICK GUTERMAN, Ph.D., Professor (*Pathology*).
KARL CLEMENS HAMNER, Ph.D., Assistant Professor (*Physiology*).
KATHERINE WYCKOFF HARRIS, M.A., Professor (*Nutrition*).
MILICENT LOUISE HATHAWAY, Ph.D., Assistant Professor (*Nutrition*).
HAZEL MARIE HAUCK, Ph.D., Professor (*Nutrition*).
CHRISTINE HELLER, M.S., Instructor (*Nutrition*).
GUSTAVE FREDERICK HEUSER, Ph.D., Professor (*Nutrition*).
JOHN KASPAR LOOSLI, Ph.D., Assistant Professor (*Nutrition*).
CLIVE MAINE MCCAY, Ph.D., Professor (*Nutrition*).
LEONARD AMBY MAYNARD, Ph.D., Professor (*Nutrition*).
HELEN MONSCH, M.A., Professor (*Nutrition*).
NORMAN SLAWSON MOORE, M.D., Professor (*Medicine*).
FRANK BARRON MORRISON, B.S., Professor (*Nutrition*).
LEO CHANDLER NORRIS, Ph.D., Professor (*Nutrition*).
MARION CAROLINE PFUND, Ph.D., Professor (*Chemistry*).
FRED HOFMANN RHODES, Ph.D., Professor (*Chemical Engineering*).
JOHN ALBION SAXTON, M.D., Instructor (*Pathology*).
ELMER SETH SAVAGE, Ph.D., Professor (*Nutrition*).
PAUL FRANCIS SHARP, Ph.D., Professor (*Chemistry*).
JAMES MORGAN SHERMAN, Ph.D., Professor (*Bacteriology*).
GEORGE FREDERICK SOMERS, JR., Ph.D., Instructor (*Biochemistry*).
JAMES BATCHELLER SUMNER, Ph.D., Professor (*Biochemistry*).
DONALD KITELEY TRESSLER, Ph.D., Professor (*Chemistry*).
CHARLOTTE MARIE YOUNG, Ph.D., Instructor (*Nutrition*).

THE SCHOOL OF NUTRITION

DEVELOPMENT AND PURPOSE

Courses in nutrition and supporting courses in the physical and biological sciences and in other fields have been offered at Cornell for many years. Both undergraduate and graduate nutrition training have thus been available for those who wish to become teachers or research workers in this field or to enter applied fields in agriculture, home economics, or industry.

The School of Nutrition has been established to integrate the training which has previously been provided, and to expand it to meet the enlarged and diversified needs of the many fields in which a thorough knowledge of nutrition and related sciences has become of paramount importance. The importance of this is well exemplified by the recommendations of the recent national nutrition conferences which stressed the need for the training of additional specialists to carry out the government's long-time program for the better nutrition of the American people. They also stressed the role which the trained nutritionist must play in the production of a food supply of higher nutritional quality, and in the development of industrial and other processes which will better conserve the nutrients in our food products.

The School offers an opportunity for study in several fields such as human nutrition, animal nutrition, food technology, and food economics including problems of food supply and distribution. Thus, its curriculum provides for the training of nutrition teachers and research workers, nutritionists in public welfare and institutional work, and personnel for the food and feed industries.

ORGANIZATION AND FACILITIES

The School is organized to provide two or more years of integrated nutrition training for those who have already completed three years of appropriate college work. To give the variety of instruction called for in training students for the different fields of work in nutrition, the School draws upon various colleges and departments of the University for its staff and for its teaching and research facilities. Its staff includes professors in the basic sciences and in the medical and various applied fields.

Well-equipped laboratories and other facilities are available for work in the various fields covered by the School program, including work in fundamental nutrition and also in the more specialized fields of human and animal nutrition. For the study of foods and of the techniques of nutrition and their applications, chemical, physiological, pathological, and bacteriological laboratories are provided. Air-conditioned rooms house colonies of the various species of laboratory animals. Farm animals, including poultry, are available for basic and applied work with these species. Opportunities are also offered for work with fish and with fur-bearing animals. The U. S. Plant, Soil,

and Nutrition Laboratory, recently established at Cornell, offers facilities for studies of the relation of the production and processing of food crops to their nutritive value. The University Clinic provides opportunities for studying the relation of diet to the maintenance of human health and resistance to disease.

ADMISSION

To be admitted to the School of Nutrition, students already registered in Cornell University must have completed three years of course work, including courses in English, Physics, Chemistry, and Biology; and also, depending to some extent on the special interests of the students, courses in Mathematics, Foreign Language, Economics, and Social Science. For more detailed information concerning the nature of the pre-nutrition work, students should refer to the "Suggested Schedules of Courses" given upon pages 9–14 of this Announcement.

Students not registered at Cornell University must meet the following additional requirements: (1) The general requirement for admission to the University as set forth in the *General Information Number*. (2) The full requirements for admission to the fourth year of work in the College of Agriculture, the College of Arts and Sciences, or the College of Home Economics. For these requirements see the respective college announcements.

Students may obtain the three years of pre-nutrition training required for entrance to the School of Nutrition at Cornell University by applying for admission to the College of Agriculture, the College of Arts and Sciences, or the College of Home Economics. They will be advised during this period by a member of the faculty of the college concerned who is acquainted with the program of the School. During the first year in the School the student will register in an undergraduate college of the University, and thus qualify for the Bachelor's Degree at the end of the year. During the second year the student will register in the Graduate School and be eligible to receive the Master's Degree upon the completion of the prescribed work. Students thus have the opportunity to obtain five or more years of integrated training. After receipt of the Master's Degree the student may then continue further study and research leading to the Doctor's Degree.

Since students taking the second year of the two-year course in nutrition are registered in the Graduate School, it is essential that they demonstrate ability to pursue advanced study and research satisfactorily by the time they receive the B.S. Degree.

Students who already have the Bachelor's Degree may be admitted to the second year's work of the School provided they have the necessary basic training and provided they can meet the requirements for admission to the Graduate School.

Students already registered in Cornell University should consult the Secretary of the Nutrition School relative to admission to it. Others should direct their request to the Director of Admissions, Cornell University.

Students, interested in nutrition, who are matriculating at Cornell for the first time, should state upon the application for admission to the College of Agriculture, Arts and Sciences, or Home Economics, that the business or profession (field of work) which they expect to enter upon graduation is nutrition. This is necessary in order that faculty advisers acquainted with the program of the School of Nutrition may be assigned to them.

TUITION AND FEES

During the first year in the School of Nutrition the student will pay the tuition fee of the college in which he has matriculated as a candidate for the Bachelor's Degree. Following the completion of work for this degree and upon admission to the Graduate School he will pay the tuition fee of that School. Tuition rates are as follows:

Four hundred dollars in the College of Arts and Sciences.
Two hundred dollars in the College of Agriculture.*
Two hundred dollars in the College of Home Economics.*
Two hundred dollars in the Graduate School.

For a complete statement regarding tuition and other fees, see the *General Information Number* and the Announcement of the college in which the student matriculates.

FELLOWSHIPS AND SCHOLARSHIPS

A certain number of fellowships and scholarships are open to students in the School of Nutrition. These include the Henry Strong Denison Fellowship in Animal Sciences, the Clinton DeWitt Smith Fellowship in Agriculture, the University Fellowship in Agriculture, the University Tuition Scholarships, and the Phi Kappa Phi Scholarship. Application for these should be filed in the Office of the Dean of the Graduate School on, or before, March 1 of the academic year preceding the one for which application is made. More complete information concerning these fellowships and scholarships can be obtained from the Announcement of the Graduate School of Cornell University.

In addition to the fellowships enumerated above, a number of Special Temporary Fellowships in support of graduate research work in nutrition are awarded by the Faculty of the Graduate School as vacancies occur. Information regarding them can be obtained from the Secretary of the School.

CURRICULUM

Upon entrance to the School, the student will be assigned a faculty adviser in the College of Arts and Sciences, Agriculture, or Home Economics, acquainted with the nutrition work. This adviser will assist the student in planning a course of study during the first year which will supplement his previous preparation, provide basic training

*Tuition is free to undergraduate students in the College of Agriculture and the College of Home Economics who at the time of their admission are, and for at least twelve months prior thereto have been, *bona-fide* residents of the State of New York.

in nutrition, and enable him to complete the requirements for the Bachelor's Degree. During his second year, the student will receive additional basic training and pursue specialized nutrition and related studies in accordance with the specific field of work which he desires to enter. The basic training will include courses in the principles of nutrition and in the underlying biological sciences, particularly biochemistry and physiology. In addition, the student will be expected to take certain courses in the application of nutrition principles to man and animals, in the chemistry, processing, and distribution of foods, and in certain other applied aspects of nutrition. Assuming that the student wishes to qualify for the Master's Degree, his studies during this second year will be under the supervision of a special committee and he will be required to present a thesis or essay, as provided by the regulations of the Graduate School.

Students who have shown special aptitude in their studies during the two years and have given promise of ability in research may continue their studies for the degree of Doctor of Philosophy, in accordance with the regulations of the Graduate School. Students who contemplate continuing for this degree should plan to obtain a reading knowledge of scientific German or French during their second year in the School if they have not done so previously. Such a reading knowledge is desirable for the nutrition student whether or not he plans to continue for the Doctor's Degree.

The previous statements indicate that there is no set curriculum for the student of nutrition, but that the training of each will be carried out in accordance with his need, having in mind the specialized field which he desires to enter.

REQUIREMENTS FOR THE M.S. DEGREE

During the second year of the two-year nutrition course, when students are preparing for the M.S. Degree, they will follow Plan A or Plan B described below.

Plan A. This plan is intended primarily for those candidates who, by suitably restricting their graduate work to a given field, wish to acquire some degree of competence in that field, frequently as a basis for further study and research, or for professional purposes. The candidate selects a Major Subject and a related Minor Subject and a Special Committee, made up of members of the Faculty to represent those subjects. He must (1) work under the direction of this Special Committee for at least the minimum required period of residence and must complete his work to the satisfaction of the committee; (2) present a thesis (or essay) acceptable to his committee; and (3) pass a final examination.

Plan B. This plan is designed for those who wish a somewhat broader training than is permitted under Plan A. The candidate, working under the direction of a Special Committee, is required (1) to complete satisfactorily a minimum of thirty semester hours of work, comprising (a) work in formal courses and in seminars including such

examinations as may be given therein; and (b) either an acceptable expository or critical essay or problem in research, or, if he prefers, a formal thesis; and (2) to pass a final comprehensive examination.

For further information concerning these plans see the *Announcement of the Graduate School*.

SCHEDULES OF COURSES

Schedules of studies have been set up to *serve as a guide* to students taking all their nutrition work at Cornell University. In these schedules the three years of pre-nutrition work and the two-year program of the School of Nutrition have been integrated for the convenience of the student. Many of the courses listed in these schedules are electives for which substitution may be made if the student finds this more in accord with his special interests. The schedules, although set up in terms of courses at Cornell University, can also be used as a guide by students taking the pre-nutrition work elsewhere.

Schedules A and B are designed for students who are interested in the more technical aspects of nutrition as in teaching and research. Schedule A is suitable for those taking the pre-nutrition work in the College of Agriculture and meets the requirements of this College. Schedule B is suitable for those taking the work in the College of Arts and Sciences and meets the requirements for the B.S. Degree with major field of work in chemistry. Schedule C is designed for students interested in the less technical aspects of nutrition, as in the food and feed industry and in agriculture, and meets the requirements of the College of Agriculture. Schedule D (Options A and B) is designed for students interested in preparing for work in health agencies and meets the requirements of the College of Home Economics.

In the following schedules, the figure in the first column after the name of the course is the departmental course number and refers to a description in this Announcement, pages 15–21, or in the Announcements of the Colleges of Agriculture, Arts and Sciences, and Home Economics. The figures in the second column indicate the hours of credit a term given for the successful completion of the several courses.

SCHEDULE A

FIRST YEAR

Subject	*Course*	*Credit a Term* *First*	*Second*
Introductory Course in Reading and Writing	2	3	3
General Chemistry	102 or 104	3	3
Introductory Zoology	1	3	3
General Botany	1	3	3
Livestock Production	1	3	–
Livestock Feeding	10	–	4
Hygiene	1 and 2	1	1
Orientation	——	1	–
Total Credit		17	17

SECOND YEAR

Introductory Qualitative Analysis	205 and 206	6	–
Introductory Quantitative Analysis	220 and 221	–	6
Introductory Geology	100	3	–
Economics	2a and 2b	3	3
The Nature and Properties of Soils	1	–	5
Vegetable Crops	1	–	3
Farm Poultry	1	3	–
Total Credit		15	17

THIRD YEAR

Introductory Organic Chemistry	305 and 310	6	6
Introductory Experimental Physics	3 and 4	3	3
Analytical Methods	111	–	4
Plant Physiology	31	4	–
Poultry Nutrition	110	–	3
Genetics	101	4	–
Total Credit		17	16

FOURTH YEAR

Analytical Geometry & Calculus	55a	5	–
General Bacteriology	1	6	–
Physiology of the Domestic Animals	12 and 13	3	3
Endocrinology, Reproduction, and Lactation	125	–	2
Production of Field Crops	11	–	4
Oral and Written Expression	101 and 102	2	2
General Sociology	1	–	3
Elective	1	–	3
Total Credit		16	17

FIFTH YEAR

Biochemistry, Advanced Lecture Course	320 and 322	3	3
Biochemistry, Advanced Laboratory Course	321 and 323	2	2
Principles of Nutrition	110	3	–
Laboratory Work in Nutrition	111	3	–
Nutrition	230	–	5
Seminar in Nutrition	219	1	1
Total Credit		12	11

SCHEDULE B

FIRST YEAR

Subject	*Course*	*Credit a Term* *First*	*Second*
Introductory Course in Reading and Writing	2	3	3
General Chemistry	102 or 104	3	3
Introductory Experimental Physics	3 and 4	3	3
Foreign Language	——	3	3
History	——	3	3
Hygiene	1 and 2	1	1
Total Credit		16	16

SECOND YEAR

Introductory Qualitative Analysis	205 and 206	6	–
Introductory Quantitative Analysis	220 and 221	–	6
Analytical Geometry and Calculus	65a and 65b	3	3
Livestock Production	1	3	–
Livestock Feeding	10	–	4
Introductory Zoology	1	3	3
Total Credit		15	16

THIRD YEAR

Introductory Organic Chemistry	305 and 310	6	6
Introductory Physical Experiments	55	–	3
Analytical Geometry and Calculus	65c	3	–
German: Course for Beginners	1a	3	3
Introduction to Sociology and Anthropology	2	3	–
Modern Economic Society	1	–	5
Total Credit		15	17

FOURTH YEAR

Physical Chemistry	406 and 410	6	6
General Bacteriology	1	6	–
Analytical Methods	111	–	4
Physiology of the Domestic Animals	12 and 13	3	3
Public Speaking	1	–	3
Total Credit		15	16

FIFTH YEAR

(Same as SCHEDULE A)

SCHEDULE C

FIRST YEAR

Subject	*Course*	*Credit a Term* *First*	*Second*
Introductory Course in Reading and Writing	2	3	3
General Chemistry	102 or 104	3	3
Introductory Zoology	1	3	3
General Botany	1	3	3
Livestock Production	1	3	–
Livestock Feeding	10	–	4
Hygiene	1 and 2	1	1
Orientation	—	1	–
Total Credit		17	17

SECOND YEAR

Introductory Analytical Chemistry	201	4	–
Introductory Experimental Physics	3 and 4	3	3
Introductory Geology	100	–	3
Farm Poultry	1	3	–
Poultry Nutrition	110	–	3
Modern Economic Society	2a and 2b	3	3
Financial Statements	121	3	–
Accounting Method	122	–	3
Total Credit		16	15

THIRD YEAR

Elementary Organic Chemistry	375	–	6
General Bacteriology	1	6	–
Physiology of the Domestic Animals	13	–	3
The Nature and Properties of Soils	1	5	–
Oral and Written Expression	101 and 102	2	2
General Sociology	1	–	3
Psychology: An Introductory Course	110	–	3
Business Law	127	3	–
Total Credit		16	17

FOURTH YEAR

Elementary Biochemistry	314	3	–
Laboratory Work in Biochemistry	314a	2	–
Analytical Methods	111	–	4
Physiology of the Domestic Animals	12	3	–
Production of Field Crops	11	4	–
Vegetable Crops	1	–	3
Money and Credit	11	3	–
Corporation Finance	31	–	3
Marketing	141	3	–
Prices	115	–	3
Elective	—	–	3
Total Credit		18	16

FIFTH YEAR

Principles of Nutrition	110	3	–
Laboratory Work in Nutrition	111	3	–
Nutrition	230	–	5
Food Processing and Nutrition	317	–	2
Seminar in Nutrition	219	1	1
Total Credit		7	8

SCHEDULE D (OPTION A)

FIRST YEAR

Subject	*Course*	*Credit a Term* *First*	*Second*
Introductory Course in Reading and Writing	2	3	3
Science Related to Food Preparation	110	5	5
Health of the Family	110	3	–
Hygiene	1 and 2	1	1
Elective	—	3	6
Total Credit		15	15

SECOND YEAR

Elementary Biochemistry	314	3	–
Laboratory Work in Biochemistry	314a	2	–
General Biology	1	3	3
Human Physiology	303	–	3
General Sociology	1	3	–
Psychology: An Introductory Course	110	3	–
Psychology for Students of Education	112	–	3
Home Nursing	120	1	–
Family Relationships and Personality Development	260	–	3
Economic Conditions in Relation to the Welfare of Families	130	–	3
Total Credit		15	15

THIRD YEAR

Introductory Experimental Physics	3 and 4	3	3
*Endocrinology and Metabolism	305	3	–
*Laboratory in Physiology	306	–	3
Household Bacteriology	4	–	3
Nutrition	230	–	5
Social Case Work	124	3	–
Marketing Problems from the Consumer's Viewpoint	160	3	–
*Management in Relation to Family Living	310	3	–
Total Credit		15	14

FOURTH YEAR

Meal Planning and Preparation	200	3	–
*Diet Therapy	330	2	–
*Family Nutrition, with Special Emphasis on Child Feeding	340	3	–
Rural Sociology	12	–	4
Practice in Social Work Agencies	123	–	3
Management in Relation to Household Equipment	320	–	3
*Educational Leadership in Homemaking and Family Life	330	–	3
Elective	—	7	3
Total Credit		15	16

FIFTH YEAR

Principles of Nutrition	110	3	–
Laboratory Work in Nutrition	111	3	–
Advanced Nutrition	400	2	–
Seminar in Foods and Nutrition	420	1	1
Seminar in Nutrition	219	–	1
Courses in Minor Field, and Special Problem or Thesis	—	–	–
Total Credit		9	2

*These courses may be taken for graduate credit if postponed to the fifth year. Choices will depend on probable minor (or field of distribution) for the Master's degree.

SCHEDULE D (OPTION B)

FIRST YEAR

Subject	*Course*	*Credit a Term* *First*	*Second*
Introductory Course in Reading and Writing	2	3	3
General Chemistry	102 or 104	3	3
General Biology	1	3	3
Food Preparation in Relation to Meal Planning	100	3	–
Health of the Family	110	3	–
Hygiene	1 and 2	1	1
Elective	—	–	3
Total Credit		16	13

SECOND YEAR

Elementary Organic Chemistry	375	6	–
Introductory Experimental Physics	3 and 4	3	3
Human Physiology	303	–	3
General Sociology	1	3	–
Psychology: An Introductory Course	110	3	–
Psychology for Students of Education	112	–	3
Home Nursing	120	1	–
Family Relationships and Personality Development	260	–	3
Economic Conditions in Relation to the Welfare of Families	130	–	3
Total Credit		16	15

THIRD YEAR

Elementary Biochemistry	314	3	–
Laboratory Work in Biochemistry	314a	2	–
Household Bacteriology	4	–	3
Food Preparation	210	4	–
Nutrition	230	–	5
Social Case Work	124	3	–
Marketing Problems from the Consumer's Viewpoint	160	–	3
*Management in Relation to Family Living	310	3	–
Elective	—	–	4
Total Credit		15	15

FOURTH YEAR

*Endocrinology and Metabolism	305	3	–
*Laboratory in Physiology	306	–	3
Meal Planning and Preparation	200	3	–
*Diet Therapy	330	2	–
*Family Nutrition, with Special Emphasis on Child Feeding	340	3	–
Rural Sociology	12	–	4
Practice in Social Work Agencies	123	–	3
Management in Relation to Household Equipment	320	–	3
*Educational Leadership in Homemaking and Family Life	330	–	3
Elective	—	4	–
Total Credit		15	16

FIFTH YEAR

(Same as OPTION A)

*These courses may be taken for graduate credit if postponed to the fifth year. Choices will depend on probable minor (or field of distribution) for the Master's degree.

COURSES OF INSTRUCTION

The information in parenthesis following the name of the course refers to the department of study and the course number. In registering for any of these courses the department and course number should be used rather than the name of the course.

Information concerning many required and elective courses is not given in this Announcement but may be obtained from the announcements of the colleges of Agriculture, Arts and Sciences, and Home Economics. A complete description of the courses related to nutrition may also be obtained from these announcements.

NUTRITION

Principles of Nutrition. (Animal Husbandry 110.) First term. Credit three hours. For advanced and graduate students. Prerequisite: a course in human or veterinary physiology, and a course in organic chemistry. Lectures, M W F 10. Wing B. Professor MAYNARD and Assistant Professor LOOSLI.

The chemistry and physiology of nutrition and the nutritive requirements for growth, reproduction, lactation, and other body functions.

Laboratory Work in Nutrition. (Animal Husbandry 111.) First term. Credit three hours. Must be preceded or accompanied by Course 110. Registration by permission. M W F 1:40–4. Animal Nutrition Laboratory, Dairy Industry Building. Professor MCCAY.

This course is designed to familiarize the student with the application of chemical methods to the solution of fundamental problems of nutrition. Laboratory fee, $10; breakage deposit, $5.

Nutrition. (Foods and Nutrition 230.) Second term. Credit five hours. Prerequisite, Foods and Nutrition 110 or 210, Human Physiology 303, and Biochemistry 314. (*In general, not to be elected by students who have had Course 130.* Adjustment may be made in special instances through conference with the instructor.) Discussion: M W Th F 2. Van Rensselaer 426 and 3M13. Laboratory, T 2–4. Van Rensselaer 426. Professor HAUCK.

Significance of food selection in achieving and maintaining health, with emphasis on the nutrition of normal adults.

The function of various food constituents such as proteins, minerals, and vitamins. Application of the principles of nutrition to needs of normal individuals, with modifications necessary for such problems as overweight, underweight, and constipation. During and as a result of this course the student is expected to establish and maintain good nutrition practices. Fee, $9.

History of Nutrition. (Animal Husbandry 215.) First term. Credit one hour. Prerequisite, Course 110 and permission to register. One meeting a week at an hour to be arranged. *Dairy Industry Building* 160. Professor MCCAY.

Lectures and conferences on the nutrition of animal species from the invertebrate to man, with special emphasis upon the fundamental discoveries in such fields as growth, comparative biochemistry, and physiology that have been synthesized into the modern science of nutrition.

Family Nutrition, with Special Emphasis on Child Feeding. (Foods and Nutrition 340.) Either term. Primarily for seniors or graduate students. Credit for lectures, two hours; for each laboratory, one hour. Any laboratory may be taken either in the same term with the lecture or in any term following the lecture. Three hours advised for teachers; two hours advised for all students. Prerequisite, Foods and Nutrition 130 or 230. Lecture and discussion, T 2–4. Van Rensselaer 339. Laboratories: A. *Infant Feeding.* Limited to twenty students. Th 2–4. Van Rensselaer 426. B. *Feeding of Pre-school Children.* Limited to ten students in each section. W 10–12:20 or 2–4:20. Van Rensselaer 301. C. *Feeding of School Children.* Limited to ten students. F 2–4:20. Van Rensselaer 301.

A study of family nutrition, with special emphasis upon the nutritional needs of the child. Relation of nutrition to physical growth and development. Experience in actual family situations, through private homes, the well-baby clinic, the Nursery School, and the public schools. Professor MONSCH and Mrs. WATSON. Fee, $7 for each laboratory credit hour; $1 for lecture.

Diet Therapy. (Foods and Nutrition 330.) First term. Credit two hours. Advised for those specializing in hospital dietetics. Primarily for seniors and graduate students. Prerequisite, Foods and Nutrition 230 or 130, and 110 or 210, Human Physiology 303, and Biochemistry 314. Lecture, discussion, and laboratory, T 11; Th 11–1. Van Rensselaer 426. Professor HAUCK.

A study of diet in those diseases such as fevers, gastrointestinal disturbances, and diabetes, in the treatment of which choice of food is important. Fee, $6.

Analytical Methods. (Dairy Husbandry 111.) Second term. Credit four hours. Prerequisite, quantitative analysis. Lecture, T Th 10. Laboratory practice, T 1–5. Dairy Industry Building 120. Professor HERRINGTON and Mr. STEWART.

The chemical analysis of products and materials important in the dairy and food industries. Laboratory fee, $10.

Science Related to Food Preparation. (Foods and Nutrition 110.) Throughout the year. Credit five hours a term (four hours, Foods; six hours, Chemistry.) (See also Courses 210 and 310.) Lecture, M F 9. Amphitheatre, Van Rensselaer. Discussion, W 9. Van Rensselaer 339, 3M13, G62, and Amphitheatre. Laboratory: first term, M W 10–12 or 2–4; T Th 8–10, 11–1 or 2–4; second term, M W 10–12:20 or 2–4:20; T Th 8–10:20 or 10:30, or 2–4:20. Van Rensselaer 353, 356, and 358. Professor PFUND, and Misses BOGGS, CARLIN, and MCCOMB.

Fundamental principles and practices of food preparation approached through the study of inorganic and organic chemistry. The influence of kind and proportion of ingredients and of methods of manipulation and cookery on the flavor and texture and nutritive quality of such foods as baked products, eggs, meats, vegetables, and sugar mixtures.

Laboratory practice in chemistry and comparative cookery includes experiments using simple chemical technics and basic cookery processes. Emphasis on the application of scientific principles to the interpretation of observed results. The course serves as a prerequisite for Chemistry 201, 210, and for Biochemistry 314 and 314a.

Food Preparation in Relation to Meal Planning. (Foods and Nutrition 100.) Second term. Credit three hours. Limited to eighteen students. Lecture, Th 9. Van Rensselaer 339. Laboratory, M W 2–4:30. Van Rensselaer 361. Mrs. FOSTER.

A beginning course in food preparation and buying in relation to meal planning and service. For students with no previous training in food preparation. *Not to be taken parallel to second term of Course 110 nor after Course 110. Fee, $18.*

Meal Planning and Preparation. (Foods and Nutrition 200.) Either term. Credit three hours. Prerequisite Foods 110 or 210 and some work in nutrition. Limited to eighteen students in a section. Lecture, M 9. First term, Van Rensselaer 3M13. Second term, Van Rensselaer 339 and 3M13. Laboratory: first term, M W or T Th 10–12:30, Van Rensselaer 361; second term, M W or T Th 10–12:30 or T Th 11–1:30, Van Rensselaer 358 and 361. Associate Professor FENTON and Mrs. FOSTER.

An advanced course in which consideration is given to problems involved in the purchase of food and the planning, preparation, and serving of meals. Emphasis on organization, management of time, money, and energy. Trip to Onondaga Pottery Company and to Oneida Silver Company. Approximate cost of trip, $2. Fee, $18.

Food Preparation: Principles and Comparative Methods. (Foods and Nutrition 210.) First term. Credit four or five hours. Limited to eighteen students. Prerequisite, General Chemistry. Students who have had Organic Chemistry may register for five-hours credit. *Not to be elected by students who have had Foods and Nutrition 110.* Lecture, T Th 9, and F 9, if registering for five-hours credit. Van Rensselaer 339. Laboratory, T Th 2–4:20. Van Rensselaer 361. Associate Professor FENTON.

A study of the principles of food preparation and the application of science, particularly chemistry, to the solution of cookery problems such as color, flavor, texture, and nutritive changes in handling and cooking vegetables and fruits; heat penetration and hydrogen ion in canning; crystallization in candies and ice creams and quick frozen foods; principles of

meat cookery and changes in nutritive values during cooking; relation of manipulation of doughs and reaction time of baking powders to quality of cakes and muffins. The literature is reviewed and typical comparative experiments are made. Fee, $18.

Biochemistry of Lactation. (Animal Husbandry 213.) Second term. Credit one hour. Given in alternate years. Prerequisite, Course 110. Hour to be arranged. Professor MAYNARD and Assistant Professor LOOSLI.

A discussion of the biochemistry of the processes involved in milk secretion and of the composition of milk as related to diet and to the blood precursors.

Experimental Methods in Poultry Nutrition. (Poultry Husbandry 210.) First term. Credit two hours. For graduate students. Not given every year and not unless five or more students apply for the course. Registration by appointment. Discussion and laboratory period, W 1:40–5. Rice. Professor NORRIS.

A critical consideration of the domestic fowl as an experimental animal and of the experimental methods used in conducting research in poultry nutrition. Laboratory fee, $5.

[**Special Topics in Animal Nutrition.** (Animal Husbandry 214.) Second term. Credit one hour. Given in alternate years. Prerequisite, Course 110 and Biochemistry 314. Professor MAYNARD and Assistant Professor LOOSLI.] Not given in 1942–43.

A presentation and discussion of the knowledge and techniques of special fields of animal nutrition.

Seminar in Foods and Nutrition. (Foods and Nutrition 420.) Either term. Credit one hour each term. Emphasis on foods first term and on nutrition second term. Required of graduate students specializing in Foods and Nutrition. Hours to be arranged. Van Rensselaer 301. Professors PFUND and HAUCK, Associate Professor FENTON, and Assistant Professor HATHAWAY. Fee, $1.

Seminar in Animal Nutrition. (Animal Husbandry 219.) First and second terms. Open to graduate students only. Registration by appointment. Assigned readings on selected topics, with weekly conferences. M 4:15. Professor MAYNARD, MCCAY, NORRIS, and HAUCK.

A consideration of the experimental data on which the principles of animal nutrition are based, and a critical review of current literature.

BIOCHEMISTRY

Elementary Biochemistry. (Biochemistry 314.) First term. Credit three hours. Prerequisite, Chemistry 375 or the equivalent. Lectures, M W 12. Conferences, F 12. Dairy Industry Building 218. Professor SUMNER and Mr. SOMERS.

The substances met with in living things, and the chief facts of digestion, metabolism, and nutrition.

Laboratory Work in Biochemistry. (Biochemistry 314a.) First term. Credit two hours. Prerequisite or parallel, Course 314. M W 1:40–4. Dairy Industry Building 175. Professor SUMNER and Mr. SOMERS.

Laboratory fee, $10; breakage deposit, $3.

Food Chemistry and Nutrition. (Biochemistry 316.) First term. Credit two hours. Primarily for students in the School of Chemical Engineering. Prerequisite, Chemistry 305 and 310 or Chemistry 375. Lecture and discussion periods, T Th 10. Rice 201. Professor NORRIS and assistant.

A study of the chemistry of the essential nutritive substances, with special emphasis upon the factors affecting their stability, and of the functions of these substances in maintaining optimum nutritional status.

Food Processing and Nutrition. (Biochemistry 317.) Second term. Credit two hours. Prerequisite, Course 316 or Animal Husbandry 110. Lecture and discussion periods, T Th 10. Rice 201. Professors NORRIS, PEDERSON, SHARP, TRESSLER, and others.

A study of the principles of food preservation, of the chief manufacturing processes used in preserving foods, and of the effect of food processing upon the maintenance of nutritive value.

Biochemistry, Advanced Lecture Course. (Biochemistry 320.) First term.

Credit three hours. Prerequisite, one term of Chemistry 305 and one term of Chemistry 310, or the equivalent, including introductory courses in qualitative and quantitative analysis. Lectures, M W F 9. Dairy Industry Building 218. Professor SUMNER and Mr. SOMERS.

The biological and physical chemistry of lipids and carbohydrates.

Biochemistry, Advanced Laboratory Course. (Biochemistry 321.) First term. Credit two hours. Prerequisite, or parallel, Course 320 or 322. Laboratory, M W 1:40–4. Dairy Industry Building 175. Professor SUMNER and Mr. SOMERS.

Laboratory experiments with lipids and carbohydrates. Laboratory fee, $15; breakage deposit, $5.

Biochemistry, Advanced Lecture Course. (Biochemistry 322.) Second term. Credit three hours. Prerequisite, one term of Chemistry 305 and one term of Chemistry 310, or the equivalent, including introductory courses in qualitative and quantitative analysis. M W F 9. Dairy Industry Building 218. Professor SUMNER and Mr. SOMERS.

The biological and physical chemistry of proteins, enzymes, and related substances.

Biochemistry, Advanced Laboratory Course. (Biochemistry 323.) Second term. Credit two hours. Prerequisite, or parallel, Course 320 or 322. Laboratory, M W 1:40–4. Dairy Industry Building 175. Professor SUMNER and Mr. SOMERS.

Laboratory experiments with proteins and enzymes. Laboratory fee, $15; breakage desposit, $5.

PHYSIOLOGY

Physiology of the Domestic Animals. (Physiology 12.) First term. Credit three hours. Lectures and recitations on blood and lymph, circulation, respiration, digestion, and absorption. M W F 8. Professor DUKES.

Physiology of the Domestic Animals. (Physiology 13.) Second term. Credit chree hours. Lectures and recitations on excretion, metabolism, heat regulation, endocrine organs, muscle and nerve, central nervous system, senses, and reproduction. M T W 9. Professor DUKES.

Experimental Physiology. (Physiology 14.) First term. Credit three hours. A course in which special emphasis is placed on mammalian physiology. Conference, Th 9. Laboratory: Section I, F 8–1; Section II, S 8–1. Laboratory fee, $15. Professor DUKES.

Advanced Experimental Physiology. (Physiology 16.) Second term. Credit three hours. Prerequisites, Course 12 or 13, or its equivalent, and Courses 14 and 15, or their equivalent. A laboratory course in mammalian and avian physiology. Number taking the course limited to ten. Registration by permission. F 9–1. A conference hour to be arranged. Laboratory fee, $10. Professor DUKES.

Human Physiology. (Physiology 303.) Either term. Credit three hours. Associate Professor DYE. Lectures, demonstrations, and discussion periods. M W F 10. Moore Laboratory 101.

An introductory course designed particularly for students who intend to take only one course in physiology, for those who are preparing to teach biology in secondary schools, and for those who desire a general knowledge of the physiological processes of the human body.

Endocrinology and Metabolism. (Physiology 305.) First term. Credit three hours. Associate Professor DYE. M W F 8. Prerequisite, six or more hours each of biology and chemistry. Moore Laboratory.

Laboratory in Physiology. (Physiology 306.) Second term. Credit three hours. Registration by permission. James Law Hall. Associate Professor DYE and assistants.

Endocrinology, Reproduction, and Lactation. (Animal Husbandry 125.) Second term. Credit two hours. Open to graduate students and upperclassmen. Prerequisite, a course in human or veterinary physiology. Lectures, M W 10. Wing A. Professor ASDELL.

A general course in endocrinology, with more detailed consideration of the endocrine processes involved in reproduction and lactation.

Plant Physiology. (Botany 31.) First or second term. Credit four hours. Pre-

requisite, Course 1 and introductory chemistry. Professor KNUDSON or Professor O. F. CURTIS, Assistant Professor CLARK, and assistants. Lectures, T Th 10. Plant Science 233. Laboratory, T Th 1:40–4 or W F 1:40–4. Plant Science 227.

This course is designed to acquaint the student with the general principles of plant physiology. Topics such as water relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, growth, and reproduction are studied in detail. Particular emphasis is placed, both in laboratory and in classroom, on discussion of principles and their application to plants. Laboratory fee, $4; deposit, $3.

RELATED COURSES

CHEMISTRY

General Chemistry. (Chemistry 102.) Credit three hours a term. This course deals with the fundamental laws and theories of chemistry and the properties of the more common elements and their compounds.

General Chemistry. (Chemistry 104.) Credit three hours a term. This course deals with the fundamental laws and theories of chemistry and the properties of the more common elements and their compounds.

Introductory Analytical Chemistry. (Chemistry 201.) Credit four hours. A study of the fundamental principles of qualitative and quantitative analysis. Laboratory practice in gravimetric and volumetric quantitative methods.

Introductory Qualitative Analysis. (Chemistry 205.) Credit three hours. A study of the application of the theories of general chemistry to the systematic separation and detection of the common elements and acid radicals.

Introductory Qualitative Analysis. (Chemistry 206.) Credit three hours. Laboratory practice. A study of the properties and reactions of the common elements and acid radicals; the qualitative analysis of a number of solutions and solid compounds.

Introductory Quantitative Analysis. (Chemistry 220.) Credit three hours. A study of the fundamental principles of gravimetric and volumetric analysis with practice in stoichiometry.

Introductory Quantitative Analysis. (Chemistry 221.) Credit three hours. Laboratory practice in the preparation and standardization of various volumetric solutions and the analysis of a variety of substances by volumetric and gravimetric methods.

Introductory Organic Chemistry. (Chemistry 305.) Credit six hours on completion of the course. Lectures and written reviews. The more important compounds of carbon, their occurrence, methods of preparation, relations, and uses.

Introductory Organic Chemistry. (Chemistry 310.) Credit three hours each term. Laboratory practice and oral reviews. The student prepares a large number of typical compounds of carbon and familiarizes himself with their properties, reactions, and relations.

Elementary Organic Chemistry. (Chemistry 375.) Six hours credit. For students in the pre-medical and biological curricula.

Physical Chemistry. (Chemistry 406.) Credit three hours a term. A study of the more fundamental principles of physical chemistry from the standpoint of the laws of thermodynamics, and of the kinetic theory. A unified treatment of the properties of matter, thermochemistry, the properties of solutions, and of equilibrium in homogeneous and heterogeneous systems. Chemical kinetics and catalysis are included.

Introductory Physical Chemistry. (Chemistry 410.) Credit three hours a term. Qualitative and quantitative experiments illustrating the principles of physical chemistry and practice in performing typical physico-chemical measurements. Recitations on the general principles of physical chemistry, based upon the lectures.

PHYSICS

Introductory Experimental Physics. (Physics 3.) Credit three hours. Mechanics, properties of matter, sound, and heat.

Introductory Experimental Physics. (Physics 4.) Credit three hours. Electricity, magnetism, and light.

Introductory Physical Experiments. (Physics 55.) Credit three hours. One lecture and two laboratory periods a week. Fundamental experiments in properties of matter, heat, light, and electricity. Intended primarily for students preparing for Medicine or majoring in Biology.

Biology

General Biology. (Biology 1.) Throughout the year. Credit three hours a termt An elementary course planned to meet the needs of students majoring outside of the plan. and animal sciences; particularly adapted as the first year of a two-year sequence in biology for the prospective teacher of general science in the secondary schools. The course deals with the nature of life, life processes, the activities and origin of living things. It covers the organization of representative plants and animals, including man as an organism, and the principles of nutrition, growth, behavior, reproduction, heredity, and evolution.

General Botany. (Botany 1.) Throughout the year. Credit three hours a term. A survey of the fundamental facts and principles of plant life. The work of the first term deals with the structures and functions of the higher plants, with special emphasis on their nutrition. The work of the second term traces the evolution of the plant kingdom, as illustrated by representatives of the principal groups, and concludes with a brief introduction to the principles of classification of the flowering plants.

Introductory Zoology. (Zoology 1.) Throughout the year. Credit three hours a term. First term: a survey of invertebrate animals. Consideration of how each of the different body plans possessed by animals without backbones provides for the essential life activities. Also a discussion of the phylogenetic relationships existing between such groups of animals. Second term: a survey of the anatomy and physiology of the vertebrate organ systems, biological principles, and evolution.

Bacteriology

General Bacteriology. (Bacteriology 1.) Credit six hours. An introductory course; a general survey of the field of bacteriology, with the fundamentals essential to further work in the subject.

Agricultural Bacteriology. (Bacteriology 3.) Credit three hours. The elements of bacteriology, with a survey of the relation of microorganisms to agriculture.

Household Bacteriology. (Bacteriology 4.) Credit three hours. An elementary, practical course for students in Home Economics.

Geology and Soils

Introductory Geology. (Geology 100.) Credit three hours. Students must register for laboratory assignments before beginning the course. The fundamental principles of this branch of science. This course cannot be elected by Arts and Sciences students for satisfaction of the science group requirement.

The Nature and Properties of Soils. (Agronomy 1.) Credit five hours. A comprehensive course dealing with the composition, properties, and plant relations of soils, with particular reference to the fundamental principles of maintaining soil fertility.

Livestock and Poultry Production

Livestock Production. (Animal Husbandry 1.) Credit three hours. Introduction to types, breeds, judging, and management of livestock.

Livestock Feeding. (Animal Husbandry 10.) Credit four hours. The feeding of farm animals, including the general basic principles, feeding standards, the computation of rations, and the composition and nutritive value of livestock feeds.

Farm Poultry. (Poultry Husbandry 1.) Credit three hours. A general course dealing with the practical application of the principles of poultry husbandry to general farm conditions.

Poultry Nutrition. (Poultry Husbandry 110.) Credit three hours. The principles of poultry nutrition and their application to poultry-feeding management.

Field and Vegetable Crops

Vegetable Crops. (Vegetable Crops 1.) Credit three hours. A general study of the principles of vegetable growing and handling, giving a comprehensive survey of the industry. Intended for the student who desires a brief general course, and as an introductory course for the student who wishes to specialize in commercial vegetable growing. Economic importance, geography, cultural requirements, marketing, storage, and uses, of the important vegetables. A one-day trip is required, usually the last Saturday of the term; approximate cost, $2.

Production of Field Crops. (Agronomy 11.) Credit four hours. A course dealing principally with the crops that are used for feeding livestock and poultry. Emphasis is placed on the hay, silage, pasture, and grain crops of the Northeastern States. Cultural methods, crop rotations, fertilizer practices, soil and climatic adaptation, and the better varieties of the important crops, are considered.

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